

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (original)

A three-dimensional shape measuring method using a light-section method, comprising the steps of:

- producing a slit light from an optical system having a light source;
- stopping said slit light asymmetrically in a slit direction and a direction perpendicular thereto;
- projecting said slit light onto an object for measurement;
- detecting said slit light as reflected by said object; and
- measuring a three-dimensional shape of said object on the basis of said reflected slit light.

Claim 2 (original)

A three-dimensional shape measuring method according to Claim 1, comprising the step of producing a plurality of said slit lights.

Claim 3 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said light source is less coherent than a laser beam.

Claim 4 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said light source is a white light source.

Claim 5 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said stopping step is performed between said producing step and said projecting step.

Claim 6 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said stopping step is performed following said projecting step.

Claim 7 (original)

A three-dimensional shape measuring method according to Claim 1, further comprising the step of reflecting said slit light with a reflector which is disposed for receiving said reflected light from said object.

Claim 8 (original)

A three-dimensional shape measuring method according to Claim 1, further comprising the step of reflecting said slit light with a reflector which is disposed for reflecting said slit light onto said object.

Claim 9 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said detecting step is performed with a single detector.

Claim 10 (original)

A three-dimensional shape measuring method according to Claim 1, wherein said detecting step is performed with a plurality of detectors.

Claim 11 (currently amended)

A three-dimensional shape measuring apparatus comprising:

an optical system having a light source, a pattern forming unit which is disposed on the optical axis of said light source to form a slit light using the light from said light source, and a projection lens to collect the slit light on an object for measurement;

an asymmetric diaphragm having an aperture to stop said slit light asymmetrically in a slit direction and a direction perpendicular thereto ~~in which the size of the aperture in the slit direction is smaller than the size of the aperture in the direction perpendicular to the slit direction~~; and

a detection unit which measures a three-dimensional shape of said object for measurement on the basis of said slit light as reflected from said object for measurement.

Claim 12 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said pattern forming unit forms a plurality of slit lights.

Claim 13 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said light source is less coherent than a laser beam.

Claim 14 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said light source is a white light source.

Claim 15 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said asymmetric diaphragm is disposed between said light source and said projection lens.

Claim 16 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said asymmetric diaphragm stops light received from said projection lens.

Claim 17 (original)

A three-dimensional shape measuring apparatus according to Claim 11, further comprising a reflector disposed for receiving said reflected light from said object.

Claim 18 (original)

A three-dimensional shape measuring apparatus according to Claim 11, further comprising a reflector disposed for reflecting said slit light onto said object.

Claim 19 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said detection unit comprises a single detector.

Claim 20 (original)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said detection unit comprises a plurality of detectors.

Claim 21 (new)

A three-dimensional shape measuring apparatus according to Claim 11, wherein said aperture in said asymmetric diaphragm is centered on said optical axis.

Claim 22 (new)

A three-dimensional shape measuring apparatus according to Claim 11, in which the size of the aperture in the slit direction is smaller than the size of the aperture in the direction perpendicular to the slit direction.

Claim 23 (new)

A three-dimensional shape measuring apparatus according to Claim 22, wherein said aperture in said asymmetric diaphragm is centered on said optical axis.

Claim 24 (new)

A three-dimensional shape measuring method according to Claim 1, wherein said asymmetric stopping step is performed by using an asymmetric diaphragm.

Claim 25 (new)

A three-dimensional shape measuring method according to Claim 24, further comprising the step of centering the diaphragm on the optical axis.

Claim 26 (new)

A three-dimensional shape measuring method according to Claim 24, further comprising

the step of using an asymmetric diaphragm having an aperture whose size in the slit direction is smaller than its size in the direction perpendicular to the slit direction.

Claim 27 (new)

A three-dimensional shape measuring method according to Claim 26, further comprising the step of centering the diaphragm on the optical axis.

Claim 28 (new)

A three-dimensional shape measuring method according to Claim 1, further comprising the step of centering the diaphragm on the optical axis.